UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,909	12/17/2003	Theodoros Salonidis	58501.00046	4027

32294 7590 01/04/2010

SQUIRE, SANDERS & DEMPSEY L.L.P.
8000 TOWERS CRESCENT DRIVE
14TH FLOOR
VIENNA, VA 22182-6212

EXAMINER	
KAO, JUTAI	

ART UNIT	PAPER NUMBER
2473	

MAIL DATE	DELIVERY MODE
01/04/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/736,909	SALONIDIS ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/26/2009 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claim 3, the applicant argues that although Counterman discloses that "a communication system manages, monitors, and prioritizes packets and allocates bandwidth with a packet network in order to satisfy the QoS objective associated with the originating application" (see applicant's remark on page 18 of 20). The applicant argues that such disclosure does not disclose how to determine if a new bandwidth allocation approaches a QoS guarantee condition. However, as shown above, the bandwidth allocation is allocated in order to "satisfy the QoS objective", therefore, such allocation must at least "approach" the QoS guarantee condition even if the condition is not met. The applicant then argues that the current application also may "realize fairness objectives in wireless ad hoc networks in addition to realizing the QoS

objectives. However, the claim does not require that both a QoS guarantee condition and fairness objectives to be met since the claim only requires "at least one of a Max Min Fair condition and a Quality of Service guarantee condition" (see current claim 3).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammel (US 7,283,494) in view of Cousins (US 6,618,385).

Hammel discloses a network channel access protocol interference and load adaptive method including the following features.

Regarding claims 1 and 7, a method/computer readable medium encoded with a computer program having subroutines for allocating bandwidth in a first node (see "shared channel access among nodes for communicating from a node to another node" recited in claim 23) that is operable in an ad hoc, wireless network (see “wireless mesh” recited in claim 23) configured to support at least one guaranteed feasible flow allocation (see “Permission to use a slot to communicate between any two nodes” recited in the abstract, and see “slot allocation” recited in column 2, line 25), the method comprising the steps of: initiating a communication between the first node and a second node in the network that, together are endpoints of a link, the communication being related to possible bandwidth allocation adjustment of a flow (see “Permission to use a slot to communicate between any two node is dynamically adjusted by the channel access protocol” recited in the abstract; that is, the two nodes dynamically communicates, are endpoints of this communication link, and the communication is related to the dynamic adjustment of the slot allocation of the link) sharing the link (see "Shared channel space is divided into a number of communication slots..." recited in the abstract; that is, slots are represents the flows sharing the shared channel link); determining, in the first node (see “Program 510 provides estimates for communication slot needs of a node 300 for communication to each neighboring node 300. Program 510 may be resident at each node 300” recited in column 9, lines 8-12), a first new bandwidth allocation that approaches a first optimization condition for the flow (see “estimates for communication slot needs of a node 300 for communication to each neighboring node 300" recited in column 9, lines 8-12); notifying neighbor nodes in the

network of the mutually-agreed upon optimal bandwidth allocation when reallocation is needed (see Inform neighboring nodes steps 1109 and 1112 in Fig. 11), wherein the at least one guaranteed feasible flow allocation comprises at least one flow allocation for which a schedule exists that can realize the at least one flow allocation by taking into accounts flows (see provides local coordination and dynamic allocation of channel space to avoid interference and to adjust for changes in load" recited in column 2, lines 7-11; also see Fig. 6A and its corresponding disclosures, which describes that self-conflicts and intranetwork conflicts of each transmission is evaluated when allocating slots) in the ad hoc network (see "wireless mesh" recited in claim 23).

Regarding claim 4, wherein the initiating step comprises initiating a communication between the first node and the second node (see rejection of claim 1) in a slotted (see "slot allocation" recited in column 2, line 25), ad hoc, wireless network (see "wireless mesh" recited in claim 23).

Regarding claims 6 and 8, a network device (see "a node " recited in claim 23) configured to allocate bandwidth in an ad hoc, wireless network (see "wireless mesh" recited in claim 23) configured to support at least one guaranteed feasible flow allocation (see "Permission to use a slot to communicate between any two nodes" recited in the abstract, and see "slot allocation" recited in column 2, line 25), the device comprising: a first communication unit/means configured to initiate a communication between the first node and a second node in the network that, together are endpoints of a link, the communication being related to possible bandwidth allocation adjustment of a flow (see "Permission to use a slot to communicate between any two node is

dynamically adjusted by the channel access protocol" recited in the abstract; that is, the two nodes dynamically communicates, are endpoints of this communication link, and the communication is related to the dynamic adjustment of the slot allocation of the link) sharing the link (see "Shared channel space is divided into a number of communication slots..." recited in the abstract; that is, slots are represents the flows sharing the shared channel link); a first processing unit/means configured to determine a first new bandwidth allocation that approaches a first optimization condition for the flow (see "estimates for communication slot needs of a node 300 for communication to each neighboring node 300" recited in column 9, lines 8-12), wherein the first processing unit/means is operably connected to the first communication unit/means (see "Program 510 provides estimates for communication slot needs of a node 300 for communication to each neighboring node 300. Program 510 may be resident at each node 300" recited in column 9, lines 8-12); a third communication unit/means configured to notify neighbor nodes (see Inform neighboring nodes steps 1109 and 1112 in Fig. 11) in the network of the mutually-agreed upon optimal bandwidth allocation when reallocation is needed (see Inform neighboring nodes steps 1109 and 1112 in Fig. 11), wherein the third communication unit/means is operably connected to the first communication unit (see Fig. 3); wherein the at least one guaranteed feasible flow allocation comprises at least one flow allocation for which a schedule exists that can realize the at least one flow allocation by taking into accounts flows (see provides local coordination and dynamic allocation of channel space to avoid interference and to adjust for changes in load" recited in column 2, lines 7-11; also see Fig. 6A and its corresponding disclosures,

which describes that self-conflicts and intranetwork conflicts of each transmission is evaluated when allocating slots) in the ad hoc network (see “wireless mesh” recited in claim 23).

Hammel does not explicitly disclose the following features: regarding claims 1 and 7, wherein the first bandwidth allocation determined in the first node approaches a first optimization condition for the flow (Hammel, as shown above, only discloses an allocation based on the load status without indicating that allocation approaches an optimization condition); communicating with the second node to determine a mutually-agreed upon optimal bandwidth allocation when reallocation is needed; and adopting the mutually-agreed upon optimal allocation for the flow when reallocation is needed (Hammel shows that intranetwork conflicts and self conflicts of the transmitting and receiving nodes are determined in Fig. 6A, but does not indicate the determined allocation being “optimal”; in addition, Hammel does not explicitly indicate that the determined allocation is "mutually-agreed upon" even though the load and interference condition of both the transmitting node and receiving node are considered); regarding claim 2, re-performing the initiating, determining, communicating, notifying, and adopting steps at a later point in time; regarding claim 5, initiating a communication between the first node and the second node in a network on which a Time Division Multiple Access (TDMA) schedule is implemented; regarding claims 6 and 8; a first processing unit/means configured to determine a first new bandwidth allocation that approaches a first optimization condition for the flow (Hammel, as shown above, only discloses an allocation based on the load status without indicating that allocation

approaches an optimization condition); a second communication unit/means configured to communicate with the node to determine a mutually-agreed upon optimal bandwidth allocation for the flow, wherein the second communication unit is operably connected to the first communication unit; and a second processing unit/means configured to adopt the mutually-agreed upon optimal allocation for the flow when reallocation is needed, wherein the second processing unit/means is operably connected to the first communication unit (Hammel shows that intranetwork conflicts and self conflicts of the transmitting and receiving nodes are determined in Fig. 6A, but does not indicate the determined allocation being “optimal”; in addition, Hammel does not explicitly indicate that the determined allocation is "mutually-agreed upon" even though the load and interference condition of both the transmitting node and receiving node are considered).

Cousins discloses a high performance, high bandwidth, and adaptive local area network communications including the following features.

Regarding claims 1 and 7, determining, in the first node (see “designated DTE…determine the parameters…” recited in column 7, line 15-16) , a first new bandwidth allocation (see “determine…optimized bandwidth, and optimized transfer conditions” recited in column 3, line 44-46) that approaches a first optimization condition for the flow (see “bandwidth…optimized given the condition and quality of the line connection” recited in column 3, line 57-58); communicating with the second node (see “DTE communicates with…DCE regarding the various measurements…to determine the parameters…” recited in column 7, line 11-16) to determine a mutually-agreed upon optimal bandwidth allocation for the flow (see “determine the best use of the available

bandwidth…" recited in column 7, line 46-47; also "negotiation further includes reservation of…bandwidth" recited in column 7, line 49-50); and adopting the mutually-agreed upon optimal allocation for the flow when the reallocation is needed (see "These parameters are then utilized…" recited in column 3, line 52-53).

Regarding claim 2, re-performing the initiating, determining, communicating, notifying, and adopting steps at a later point in time (see "network initialization process may continue…ongoing calibration…may also be performed whenever there is a changed condition…" recited in column 6, line 19-26; wherein the initialization process includes all processes described above in the rejection made to claim 1, and the notifying step is disclosed in Hammel above, where the notifying step could be incorporated into the initialization process described here).

Regarding claim 5, initiating a communication between the first node and the second node in a network (explained above in the rejection made to claim 1) on which a Time Division Multiple Access (TDMA) schedule is implemented (see "TDMA" recited in column 10, line 45-50).

Regarding claims 6 and 8, a first communication unit/means (see "interface adapter 200 of the designated DTE" recited in column 7, line 11) configured to initiate a communication between (see "two machines…communicate…" recited in column 7, line 40-41) the device (see "DTE (sender)" recited in column 5, line 8) and a node ("DCE (receiver)" recited in column 5, line 8-9) in the network (see "two machines in the LAN" recited in column 7, line 40-41) that, together, are endpoints of a link in the network (DTE being the sender end and DCE being the receiver end), the communication being

related to possible bandwidth allocation adjustment of a flow sharing the link (see "negotiation session …to determine the best use of the available bandwidth" recited in column 7, line 44-47; a first processing unit/means (again, the DTE described above) configured to determine a first new bandwidth allocation (see "determine…optimized bandwidth, and optimized transfer conditions" recited in column 3, line 44-46) that approaches a first optimization condition for the flow (see "bandwidth…optimized given the condition and quality of the line connection" recited in column 3, line 57-58), wherein the first processing unit/means is operably connected to the first communication unit (the DTE is connected to the DTE adapter; see Fig. 2 "TO/FROM DTE" connection with the adapter 200); a second communication unit configured (the DTE itself) to communicate with the node (see "DTE communicates with…DCE regarding the various measurements…to determine the parameters…" recited in column 7, line 11-16) to determine a mutually-agreed upon optimal bandwidth allocation for the flow (see "determine the best use of the available bandwidth…" recited in column 7, line 46-47; also "negotiation further includes reservation of…bandwidth" recited in column 7, line 49-50), wherein the second communication unit/means is operably connected to the first communication unit (the DTE includes both units); and a second processing unit/means (the DTE itself) configured to adopt the mutually-agreed upon optimal allocation for the flow when the reallocation is needed (see "These parameters are then utilized…" recited in column 3, line 52-53), wherein the second processing unit/means is operably connected to the first communication unit (the DTE includes both units).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Hammel by using the features, as taught by Cousins, in order to provide the communication with optimized bandwidth and transfer conditions (see Cousins column 3, lines 44-46).

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammel in view of Cousins as applied to claim 1 above, and further in view of Counterman (US 6,724,727).

Hammel and Cousins discloses the claimed limitations described above.

Hammel and Cousins do no disclose the following features: regarding claim 3, determining, in a first node, a first new bandwidth allocation that approaches at least one of a Max Min Fair condition and a Quality of Service guarantee condition.

Counterman discloses a policy-based forward error correction in packet networks including the following features.

Regarding claim 3, determining, in a first node, a first new bandwidth allocation (explained above in the rejection made to claim 1 using Hammel and Cousins) that approaches at least one of a Max Min Fair condition and a Quality of Service guarantee condition (see “allocates bandwidth…in order to satisfy the QoS objectives…” recited in column 1, line 63-65).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Hammel and Cousins by using the feature, as taught by Counterman, in order to enhance the service quality to the end users.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ju-Tai Kao

/Ju-Tai Kao/
Acting Examiner of Art Unit 2473

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2473